[0008] In accordance with the present invention, a method and apparatus are provided in which polygons in a selected area of a display is provided with the special effect of distortion as produced by thick glass or a lens. The selected area may be, for example, a circle simulating a magnifying glass. Textures are represented by texel coordinates U and V, which specify the location of color components within a set of image data. Within the area selected to appear magnified, the present invention perturbs the texel location selection to simulate an angle of refraction in the selected area. This is most conveniently and efficiently done during the texturing operation. The scene may also be animated through a rendering of a real-time sequence of images appearing to be shown through a magnifying glass by re-mapping a different portion of the texture in each frame. Optionally, prior to rendering the polygons within the simulated magnifying glass area, the content of the frame buffer could be captured and used as a texture and the refraction effect could then be applied to the entire captured frame.

Please replace paragraph [0029] with the following amended paragraph:

[0029] At block 135, multiplying is done using values obtained at block 130. This multiplication is performed for each polygon fragment. Many different particular mechanisms for multiplying are well known in the art. The eye point δ angle stored at each vertex can be pre-scaled by a constant factor N to modify the magnitude of the refractive effect. Offsetting the U and V values by the scaled eye point δ angles is defined as:

U'=U+(N*(eye point δx angle))

V'=V+

(N*(eye point δy angle)).

N represents a means of controlling the effect to achieve the desired result. N<1 represents magnification. N>1 represents demagnification. The new U and V prime values are used to

specify the texel location in the texture image to be used with the fragment. In performing calculations, actual angles values may be used, but it is most convenient to normalize an angular value to a pre-selected linear displacement. As seen at block 140, texturing is next performed. For achieving the refraction effect, U and V coordinates associated with each fragment are modified by eye point values generated for that fragment. This step cannot be pre-processed to simply modify the U and V coordinates at each vertex by eye point values. The per fragment modification involves a non-linear relationship that cannot be interpolated between vertices. The non-linearity relates to the use of divide by w (or multiple by 1/w), which is a standard prior art function used in automatic perspective correction. At block 122, z buffering is provided. Z buffering comprises eliminating fragments that are occluded by those closer to the plane of projection. The contents of the z buffer are continuously scanned out to the video display or computer monitor.

Please replace paragraph [0030] with the following amended paragraph:

[0030] Figure 8, comprising Figures 8a and 8b, is a view of a stored image 160 to be mapped on to a polygon 164 and projected onto the display 5 without and with the magnification effect respectively. The same reference numerals are used to denote elements corresponding to those of Figures 3-5. In the present example, the image 160 is a letter A, and the polygon 164 is a triangle. In the cases of both Figures 8a and 8b, the image 160 is accessed from memory and will be mapped as a texture on the polygon 164. In Figure 8b, the modifying U and V coordinates according to eye point angle changes the part of the image 160 that is mapped on to the polygon 164 and seen in the display 5 within the projection 180 of the polygon 170 on the display 5.
